DETAILED ACTION

Claims 1, 4-8, 13-15, 17-21, and 24-29 are pending. Claims 2, 3, 9-12, 16, 22, and 23 are cancelled. Claims 6-8, 19, and 20 are withdrawn.

The text of those sections of 35 U.S. Code not included in this action can be found in the previous Office Action issued 06-10-2010.

Claim Rejections - 35 USC § 112

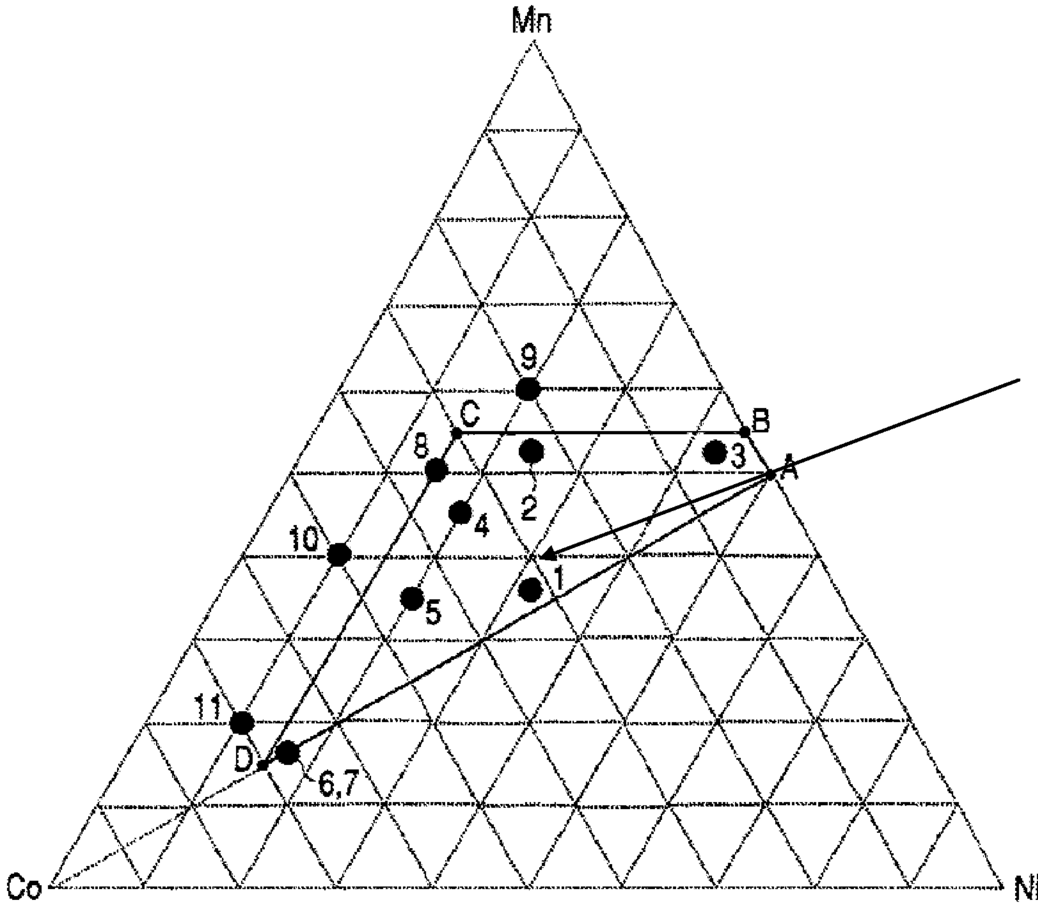
The claim rejections under 35 U.S.C. 112 as nonenabled on claims 1, 4, 5, 17-18, 21, and 24-29 are withdrawn because applicant has amended the claims.

Claim Rejections - 35 USC § 103

Claims 1, 4, 5, 13-15, 18, 21, and 24-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiozaki et al. (WO 03/044881, for English translation see US Pat. No. 7,393,476) in view of Chen et al. (CN 1416189).

Regarding claims 1, 4, 5, 17, 18, 24, 25, and 29, Shiozaki et al. discloses a positive active material containing lithium (base particle) (abstract). Inherent in a positive active material containing lithium is the ability to dope and release lithium ions. Shiozaki et al. further disclose a positive active material containing lithium comprising $Li_xMn_aNi_bCo_cO_2$ (base particle) (see abstract). Shiozaki et al. further discloses a positive active material corresponding to the claimed composition wherein a=0.3, b=0.3, c=0,4 and $0.95<x<1.3$ (see abstract; fig. 1). Shiozaki et al. also disclose that the structure of the positive active material is an $\alpha NaFeO_2$ structure (abstract).

FIG. 1



Shiozaki et al. does not disclose an element that is not a part of the base particles that is able to come into contact with the electrolyte is formed on base particles. However, Chen et al. disclose a positive electrode for a lithium secondary battery that is covered in a composite material (formed on the surface and not incorporated in the base particles) that may comprise an oxide of Y, Yb, Gd, Ce, or La (claims 1 and 4, abstract). Such a coating would come into contact with the electrolyte of the battery. Chen et al. disclose that coated electrode battery has a high reversible

capacitance (abstract). Applicant should note that the machine translation refers to the electrode as “anodal,” however, it is apparent from the English abstract that the coating is to be applied to the cathode. Therefore, it would have been obvious to one of ordinary skill in the art to combine the active material of Shiozaki et al. with a composite covered electrode because Chen et al. disclose that such a composite covering on an electrode can form a battery having a high reversible capacitance.

The combination of Shiozaki and Chen do not specifically disclose that weight percentage of the elemental oxide is between 0.1% and 4%. However, Cho discloses that the amount of a rare earth element (e.g. Gd, Yb) added to treat the surface of a positive electrode can effect the thermal stability of the electrode surface (par. 64-66 (examples 1 and 2), par. 77-79 (table 2)). Therefore, the concentration of the surface elemental oxide added to the active material is a known result effective variable. The optimization of a known result effective variable is within the ambit of one of ordinary skill in the art. See, *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980); MPEP 2144.05(II)(B). Therefore, it would have been obvious to one of ordinary skill in the art to optimize the concentration of the element in the surface coating relative to the active material in the combination of Shiozaki and Chen because Cho teaches that the concentration of the surface coating element can affect the thermal stability of the active material.

Regarding claim 13, it is implicit in Shiozaki et al. that the positive active material is for use in a positive electrode (abstract). Shiozaki et al. further discloses that the positive active material is for use in a lithium secondary battery (abstract).

Regarding claim 14, Shiozaki et al. disclose a lithium secondary battery, with a positive electrode, a negative electrode capable of doping and undoping lithium ions and a nonaqueous electrolyte (col. 12 lines 42-50).

Regarding claim 17, Shiozaki et al. does not disclose that $LiCoO_2$ is used as the active material. However, Shiozaki et al. disclose that the amounts of Mn, Co, and Ni used in the active material can affect the charge/discharge capacity of the battery and the capacity retention (col. 26-28, tables 1 and 2). Shiozaki et al. further disclose experimental data that shows that having lesser amounts of Mn and Ni has improved charge discharge capacity and capacity retention (col. 26-28, tables 1 and 2). Thus, the amount of Mn, Ni, and Co in the invention of Shiozaki et al. is a known result effective variable. The optimization of a known result effective variable is within the ambit of one of ordinary skill in the art. See, *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980); MPEP 2144.05(II)(B). Therefore, it would have been obvious to one of ordinary skill in the art to optimize the concentration of the Ni, Mn, and Co in the combination of Shiozaki et al. and Chen because Shiozaki et al. teach that the concentrations of all three elements affect the performance of the battery.

Regarding claim 15, Shiozaki et al. disclose that the batteries using the positive active material have obtained voltages as high as 5 V and that the batteries have been tested at voltages of 4.6 V (col. 29 line 63-col. 30 line 4).

Claims 21 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shiozaki and Chen et al. as applied above, further in view of Cho (US Pub. 2003/0211391).

Regarding claims 21 and 28, the combination of Shiozaki and Chen do not specifically disclose that weight percentage of the elemental oxide is between 0.5% and 4%. However, Cho discloses that the amount of a rare earth element (e.g. Gd, Yb) added to treat the surface of a positive electrode can effect the thermal stability of the electrode surface (par. 64-66 (examples 1 and 2), par. 77-79 (table 2)). Therefore, the concentration of the surface elemental oxide added to the active material is a known result effective variable. The optimization of a known result effective variable is within the ambit of one of ordinary skill in the art. See, *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980); MPEP 2144.05(II)(B). Therefore, it would have been obvious to one of ordinary skill in the art to optimize the concentration of the element in the surface coating relative to the active material in the combination of Shiozaki and Chen because Cho teaches that the concentration of the surface coating element can affect the thermal stability of the active material.

Regarding claims 26 and 27, Shiozaki et al. discloses that it is for use in a lithium non-aqueous electrolyte battery (col. 1 lines 13-21). Lithium batteries inherently have negative electrodes containing negative active material that is able to dope and undope lithium ions. Shiozaki et al. disclose that the batteries using the positive active material have obtained voltages as high as 5 V and that the batteries have been tested at voltages of 4.6 V (col. 29 line 63-col. 30 line 4).

Response to Arguments

Applicant's arguments with respect to claims 1, 4, 5, 17-18, 21, and 24-29 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JACOB MARKS whose telephone number is (571)270-7873. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ula Ruddock can be reached on 571-272-1481. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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